DOCKET NO. D-2012-023-1

DELAWARE RIVER BASIN COMMISSION

Berks Hollow Energy Associates, LLC
Berks Hollow Energy Station and Non-Contact Cooling Water Discharge
Ontelaunee Township, Berks County, Pennsylvania

PROCEEDINGS

This docket is issued in response to an Application submitted to the Delaware River Basin Commission (DRBC or Commission) by Berks Hollow Energy Associates, LLC. (Berks Hollow Energy) on July 12, 2012 (Application) for a new energy generating facility and its associated non-contact cooling water (NCCW) discharge. The docket holder submitted a National Pollutant Discharge Elimination System (NPDES) Permit application to the Pennsylvania Department of Environmental Protection (PADEP) for the industrial process water (NCCW) discharge associated with this project on June 29, 2012, which is currently under review.

The Application was reviewed for approval under Section 3.8 of the *Delaware River Basin Compact*. The Berks County Planning Commission has been notified of pending action. A public hearing on this project was held by the DRBC on December 5, 2012.

A. DESCRIPTION

1. Purpose. The purpose of this docket is to approve the docket holder's new energy generating facility project, referred to as the Berks Hollow Energy Station, and its consumptive water use and discharge of NCCW (cooling tower blowdown). The project consists of the construction of a 685-megawatt (MW) electric generation facility, employing natural gas-fired combined-cycle combustion turbines. The project also includes the construction of a mechanical draft cooling tower from which cooling tower blowdown will discharge to a new outfall on the Schuylkill River at a maximum flow rate of 1.4 million gallons per day (mgd). The new energy generating facility proposes to consumptively use up to 7.4 mgd of surface water to be provided by the Reading Area Water Authority (RAWA). This docket also approves a Total Dissolved Solids (TDS) determination for the discharge of 2,000 mg/l as a maximum instantaneous effluent concentration limit.

2. Location. The Berks Hollow Energy Station project will be located on Pottsville Pike (US Route 61), adjacent to and just south of Willow Creek, in Ontelaunee Township, Berks County, Pennsylvania. The new NCCW discharge will be to the Schuylkill River at River Mile 92.47 – 86.9 (Delaware River - Schuylkill River).

The new outfall will be located in the Schuylkill River Watershed as follows:

OUTFALL NO.	LATITUDE (N)	LONGITUDE (W)
001	40° 25' 20"	75° 56' 52"

3. **Area Served**. The docket holder will discharge untreated industrial process water (cooling tower blowdown) from their new energy generating facility to be located in Ontelaunee Township, Berks County, Pennsylvania.

For the purpose of defining the Area Served, Section B (Type of Discharge) and D (Service Area) of the docket holder's Application are incorporated herein by reference, to the extent consistent with all other conditions contained in the DECISION Section of this docket.

4. **Physical features**.

a. **Design criteria**. The docket holder proposes to construct a new 685-MW energy generation facility that will consumptively use up to 7.4 mgd, and will include a 1.4 mgd IWTP that will discharge untreated cooling tower blowdown.

b. **Facilities**. The power block of the new electric generation facility will consist of two (2) natural gas-fired combined-cycle combustion turbines and two (2) heat recovery steam generators that will provide steam to a single steam turbine generator. Each heat recovery steam generator will be equipped with duct burners to be employed during peak demand only. The nominal rating of the facility will be 685 MW, with the peaking capacity of the facility to be 855 MW with the duct burners in operation. The project includes the construction of a mechanical draft cooling tower, a natural gas-fired auxiliary boiler, a fuel heater, and a new NCCW (cooling tower blowdown) outfall, which will discharge at a maximum flow rate of 1.4 mgd. The project does not propose a new surface or groundwater withdrawal. Make-up water for the cooling tower will be provided by RAWA. RAWA owns an existing surface water intake on the Lake Ontelaunee Reservoir, from which it provides public water supply to residential, commercial, and industrial users. Consumptive use will range from approximately 3.0 mgd to 7.4 mgd.

The new facility will discharge cooling tower blowdown to the Schuylkill River, via a new outfall. The new outfall pipe will run from the new generating facility site to the west, along a water supply line easement on the border of the existing RAWA water treatment plant, across a private property and a privately-owned railroad. Domestic sanitary wastewater generated at the facility will be sent to the existing Reading WWTP for treatment and discharge to the Schuylkill River.

The docket holder also is requesting a TDS determination of 2,000 mg/l as a maximum instantaneous effluent concentration limit for the proposed discharge from Outfall No. 001.

The project facilities are outside the 100-year flood zone.

c. Other. Domestic sanitary wastewater generated at the facility will be sent to the existing Reading WWTP for treatment and discharge to the Schuylkill River at River Mile 92.47 – 72.8 (Delaware River – Schuylkill River). The Reading WWTP was approved by the DRBC on September 17, 1986 via Docket No. D-1986-028 CP-1. The potable water supply for the energy generating facility and the make-up water supply for the new cooling tower will be provided by RAWA, which owns and operates a surface water intake on the Lake Ontelaunee Reservoir. RAWA's surface water withdrawal is described in detail in DRBC Docket No. D-2000-059 CP-2, approved by the DRBC on May 11, 2011, for a surface water allocation of 35 mgd (1,085 million gallons per month). See the FINDINGS section of this docket for more information on the water supply to be provided by RAWA.

d. NPDES Permit / DRBC Docket. The docket holder submitted a NPDES Permit application to the PADEP for the new NCCW discharge associated with this project on June 29, 2012, which is currently under review. The Schuylkill River at the proposed new outfall location is classified by the PADEP as Warm Water Fishery (WWF). The following average monthly effluent limits for proposed Outfall No. 001, based on a discharge rate of 1.4 mgd, are requirements of the DRBC:

EFFLUENT TABLE A-1: DRBC Parameters for Proposed Outfall 001

OUTFALL 001 (Schuylkill River)		
PARAMETER	**LIMIT**	**MONITORING**
Temperature	110 ^{o} F (Max)	Continuous
pH (Standard Units)	6 to 9 at all times	Monthly
Total Suspended Solids	30 mg/l	Monthly
Total Dissolved Solids*	2,000 mg/l (maximum instantaneous)	Monthly
Ammonia Nitrogen**	Monitor & Report	Monthly**

* See Condition II.u. in Decision section

** See Condition II.v. in Decision section

e. Cost. The overall cost of this project is estimated to be approximately $750,000,000.00.

B. FINDINGS

The docket holder submitted an Application for approval of a new energy generating facility project, referred to as the Berks Hollow Energy Station. The project will include a consumptive water use greater than 100,000 gallons per day (gpd) and a discharge of NCCW (cooling tower blowdown) greater than 50,000 gpd. The project consists of the construction of a 685-megawatt (MW) electric generation facility, employing natural gas-fired combined-cycle combustion turbines. The project also includes the construction of a mechanical draft cooling tower from which cooling tower blowdown will discharge to a new outfall on the Schuylkill River at a maximum flow rate of 1.4 mgd. The new energy generating facility proposes to consumptively use up to 7.4 mgd of surface water to be provided by RAWA.

The new energy generating facility will discharge cooling tower blowdown to the Schuylkill River via a new outfall. The new outfall pipe will run from the new generating facility site to the west, along a water supply line easement on the border of the existing RAWA water treatment plant, across a private property and a privately-owned railroad. The docket holder also is requesting a TDS determination of 2,000 mg/l as a maximum instantaneous effluent concentration limit for the proposed discharge from Outfall No. 001.

The project does not propose a new surface or groundwater withdrawal. Make-up water for the cooling tower will be provided by RAWA. RAWA owns an existing surface water intake on the Lake Ontelaunee Reservoir, from which it provides public water supply to residential, commercial, and industrial users. RAWA's surface water withdrawal is described in detail in DRBC Docket No. D-2000-059 CP-2, approved by the DRBC on May 11, 2011, for a surface water allocation of 35 mgd (1,085 million gallons per month). RAWA has provided the docket holder with a "will serve" letter for up to 9 mgd; however, the docket holder only proposes to use a maximum of 8.8 mgd.

Water Supply Charges

The docket holder estimates that the consumptive water use for the project, used for the purpose of cooling associated with power generation, is approximately 84 % of the total water use. The DRBC definition of consumptive use is defined in Article 5.5.1.D of the *Administrative Manual – Part III – Basin Regulations – Water Supply Charges* (*WSC*). Since the docket holder is not withdrawing surface water for the project water use, the docket holder is not subject to water charges.

With regard to the water to be provided for the proposed project by RAWA from its surface water withdrawal, the City of Reading constructed and maintained the Lake Ontelaunee Reservoir prior to the establishment of the DRBC. RAWA is a municipal authority that is successor in interest to the City of Reading, as owner and operator of the Lake Ontelaunee Reservoir. Article 5.1.3.D, of the DRBC Basin Regulations – Water Supply Charges provides:

"Notwithstanding the provisions of A., B. and C., there shall be no charge for water made available from storage where: (1) The cost of the storage facility has or will be otherwise paid for by the user; (2) such storage controls a drainage area; and (3) the use does not exceed the yield of such storage without augmentation from other surface water of the basin."

RAWA meets the conditions of Article 5.1.3.D and therefore is not required to pay water supply charges to the Commission for withdrawals from the Lake Ontelaunee Reservoir as: 1) the City of Reading and the successor agency, RAWA, has paid for and maintains the Lake Ontelaunee Reservoir storage facility; 2) the Lake Ontelaunee Reservoir storage facility controls a drainage area; and 3) RAWA's use does not exceed the yield of the Lake Ontelaunee Reservoir storage facility without augmentation from other surface water of the basin.

Water Availability Study

Docket No. D-2000-059 CP-2 requires RAWA to provide a minimum conservation

release equal to 28.8 cfs (based on 0.15 cfsm average for the contributing drainage area) or the inflow to the Lake Ontelaunee Reservoir, whichever is less, when the reservoir level is less than 300 feet, which is consistent with the PADEP approval. Docket No. D-2000-059 CP-2 requires the RAWA Lake Ontelaunee Reservoir conservation releases shall be maintained as follows:

TABLE B-1 DRBC Required Conservation Release

Reservoir Storage Elevation (NGVD)	Conservation Release
> 302 feet	51 cfs
300-302 feet (and inflow to reservoir greater than 28.8 cfs)	36 cfs
< 300 feet	28.8 cfs (0.15 cfsm) or equal to reservoir inflow

The docket holder's consultant, Tata & Howard, submitted a report entitled "Water Availability Study, Proposed Berks Hollow Energy Station", dated October 12, 2012 (Report). The purpose of the Report is to determine if the Lake Ontelaunee Reservoir has a sufficient capacity to allow RAWA to support its existing public water supply demand and supply water use for the proposed Berks Hollow Energy Station project. DRBC staff concurs with the conclusions of the report, that the Lake Ontelaunee Reservoir can sustainably supply RAWA's existing public water supply demand and the projected water uses of the proposed Berks Hollow Energy Station project, while maintaining the conservation releases listed in Table B-1 above.

Total Dissolved Solids (TDS) Effluent Limit Determination

The docket holder submitted in the Application a TDS Determination Questionnaire, including a request for an instantaneous maximum effluent concentration limit of 2,000 mg/l for the proposed discharge from Outfall 001.

The proposed facility will generate a higher TDS concentration in their NCCW discharge than the TDS concentration in their make-up water supply through the process of continuously recycling NCCW in their cooling tower, which will result in reduced water volume while maintaining TDS load in pounds (lbs). When the recycled NCCW reaches a certain TDS concentration (approximately 1,600 mg/l to 2,000 mg/l), scaling of cooling tower equipment may occur and therefore the NCCW must be blown down. There are some chemicals used in the cooling tower system in order to control pH, biological organisms and scaling; however these chemicals are not expected to significantly contribute to TDS. Therefore, the TDS load (lbs) into the facility equals the TDS load (lbs) out of the facility.

Section 3.10.4.D.2 of the DRBC *Water Quality Regulations* (*WQR*) includes the Commission's basin-wide TDS effluent concentration limit of 1,000 mg/l. The Commission's basin-wide in-stream TDS criteria is that the receiving stream's resultant TDS concentration be less than 133% of the background (WQR Section 3.10.3.B.1.b.) and the receiving stream's resultant TDS concentration be less than 500 mg/l (WQR Section 3.10.3.B. 2.). The discharge is required to comply with the more stringent of the above in-stream criteria.

The 133% of the background TDS requirement is for the protection of aquatic life. The in-stream flow at which background TDS is to be determined is the minimum consecutive 7-day

flow with a 10-year recurrence interval (referred to as the $Q_{7\text{-}10}$ flow). The location on the receiving water body at which 133% of background is established is just upstream of the proposed outfall. The 500 mg/l TDS requirement is to protect the designated use of the receiving stream as a drinking water source. The US EPA's Safe Drinking Water Act's secondary standard for TDS is 500 mg/l.

The Commission's numerical stream quality objectives are based on a minimum consecutive 7-day flow with a 10-year recurrence interval ($Q_{7\text{-}10}$). Basin-wide stream quality objectives are to assure that the designated uses of the waterbody, including the protection of aquatic life and human health are achieved. Furthermore, Section 4.30.7.A.7.b. of the WQR requires that the stream flow to be used in the determination of the waste assimilative capacity of an unregulated stream be the consecutive 7-day flow with a 10-year recurrence interval ($Q_{7\text{-}10}$).

Using historical United States Geological Survey (USGS) flow data, DRBC staff estimated the background TDS concentration of the Schuylkill River under $Q_{7\text{-}10}$ conditions at two locations: 1) upstream of the proposed outfall location on the Schuylkill River at Schuylkill River Mile 95.6, at USGS Gage No. 01470500 (Berne, PA); and 2) downstream of the proposed outfall location on the Schuylkill River at Schuylkill River Mile 53.8, at USGS Gage No. 01472000 (Pottstown, PA). The respective TDS concentrations under $Q_{7\text{-}10}$ conditions were 333 mg/l (Berne, PA) and 346 mg/l (Pottstown, PA). In the TDS determination analysis, DRBC staff used the upstream data (Berne, PA) as the best estimate of the in-stream TDS concentration that will be encountered at the proposed outfall location on the Schuylkill River. The estimated flow of the Schuylkill River at the Berne Station under $Q_{7\text{-}10}$ flow conditions is 100 mgd.

133% of 333 mg/l is 443 mg/l. Since 443 mg/l is less than the 500 mg/l TDS requirement, the 133% of background requirement is the more stringent of the two Commission in-stream criteria, and therefore the resultant in-stream concentration in the Schuylkill River may not exceed 443 mg/l as a result of the proposed NCCW discharge and associated TDS determination.

Using a mass-balance equation, and based on the background TDS concentration and flow in the Schuylkill River of 333 mg/l and 100 mgd, respectively, the TDS in the Schuylkill River would be raised to 356 mg/l by the proposed discharge from Outfall 001 (comprised of a TDS concentration of 2,000 mg/l at a flow of 1.4 mgd). 356 mg/l TDS is approximately 107 % of the Schuylkill River's background of 333 mg/l TDS under $Q_{7\text{-}10}$ flow conditions.

Although the discharge exceeds DRBC's basin-wide TDS effluent limit of 1,000 mg/l, DRBC staff determined the discharge to be compatible with the Commission's designated water uses and water quality objectives in conformance with DRBC *WQR* since the in-stream concentrations in the Schuylkill River are not expected to exceed the US EPA's Safe Drinking Water Act's secondary standard for TDS (500 mg/l) nor exceed the Commission's criteria of 133% of background as a result of the IWTP discharge. Therefore, the 2,000 mg/l maximum instantaneous effluent concentration limit for the proposed discharge from Outfall 001 is approved via this docket.

Construction Plan Approval

The docket holder submitted site permitting plans for the project, dated June 26, 2012 and July 10, 2012. The docket holder is required to submit final project plans and specifications related to the site layout, the new outfall, and the non-contact cooling system. This docket includes a condition providing that the Executive Director must approve the plans and specifications for the project prior to initiation of construction (See Condition II.j. in the DECISION section).

Near the project site, the Schuylkill River has an estimated seven day low flow with a recurrence interval of ten years ($Q_{7\text{-}10}$) of 100 mgd (155 cfs). The ratio of this low flow to the maximum discharge from the proposed project (1.4 mgd) is 71 to 1.

The nearest surface water intake of record for public water supply downstream of the project discharge is owned and operated by the Borough of Pottstown on the Schuylkill River, located approximately 30 miles downstream of the proposed outfall.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

The limits in the NPDES Permit are in compliance with Commission effluent quality requirements, where applicable.

The project is designed to produce a discharge meeting the effluent requirements as set forth in the Commission's *WQR*.

C. DECISION

I. Effective on the approval date for Docket No. D-2012-023-1 below, the project and appurtenant facilities as described in the Section A "Physical features" of this docket are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

a. Docket approval is subject to all conditions, requirements, and limitations imposed by the PADEP in its NPDES permit, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission's. Commission approval of this docket is contingent on the PADEP's approval of the NPDES permit.

b. The facility and operational records shall be available at all times for inspection by the DRBC.

c. The facility shall be operated at all times to comply with the requirements of the *WQR* of the DRBC.

d. The docket holder shall comply with the requirements contained in the Effluent Table in Section A.4.d. of this docket. The docket holder shall submit the required monitoring results directly to the DRBC Project Review Section. The monitoring results shall be submitted annually, absent any observed limit violations, by January 31. If a DRBC effluent limit is violated, the docket holder shall submit the result(s) to the DRBC within 30 days of the violation(s) and provide a written explanation that states the action(s) the docket holder has taken to correct the violation(s) and protect against any future violations.

e. Except as otherwise authorized by this docket, if the docket holder seeks relief from any limitation based upon a DRBC water quality standard or minimum treatment requirement, the docket holder shall apply for approval from the Executive Director or for a docket revision in accordance with Section 3.8 of the *Compact* and the *Rules of Practice and Procedure*.

f. If at any time the new facilities prove unable to produce an effluent that is consistent with the requirements of this docket approval, no further connections shall be permitted until the deficiency is remedied.

g. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

h. The discharge of wastewater shall not increase the ambient temperatures of the receiving waters by more than 5°F, nor shall such discharge result in stream temperatures exceeding 87°F.

i. Sound practices of excavation, backfill and reseeding shall be followed to minimize erosion and deposition of sediment in streams.

j. The docket holder shall submit final project plans and specifications related to the site layout, the new outfall, and the non-contact cooling system, to be approved by the Executive Director, prior to initiation of construction.

k. Within 10 days of the date that construction of the project has started, the docket holder shall notify the DRBC of the starting date and scheduled completion date.

l. Within 30 days of completion of construction of the approved project, the docket holder is to submit to the attention of the Project Review Section of DRBC a Construction Completion Statement ("Statement") signed by the docket holder's professional engineer for the project. The Statement must (1) either confirm that construction has been completed in a manner consistent with any and all DRBC-approved plans or explain how the as-built project deviates from such plans; (2) report the project's final construction cost as such cost is defined by the project review fee schedule in effect at the time the application was made; and (3) indicate the date on which the project was (or is to be) placed in operation.

m. This docket approval shall expire three years from date below unless prior thereto the docket holder has commenced operation of the subject project or has expended substantial funds (in relation to the cost of the project) in reliance upon this docket approval.

n. The docket holder is permitted to treat and discharge wastewaters as set forth in the Area Served Section of this docket, which incorporates by reference Sections B (Type of Discharge) and D (Service Area) of the docket holder's Application to the extent consistent with all other conditions of this DECISION Section.

o. The docket holder shall make wastewater discharge in such a manner as to avoid injury or damage to fish or wildlife and shall avoid any injury to public or private property.

p. Nothing in this docket approval shall be construed as limiting the authority of DRBC to adopt and apply charges or other fees to this discharge or project.

q. The issuance of this docket approval shall not create any private or proprietary rights in the waters of the Basin, and the Commission reserves the right to amend, suspend or rescind the docket for cause, in order to ensure proper control, use and management of the water resources of the Basin.

r. Unless an extension is requested and approved by the Commission in advance, in accordance with paragraph 11 of the Commission's Project Review Fee schedule (Resolution No. 2009-2), the docket holder is responsible for timely submittal of a docket renewal application on the appropriate DRBC application form at least 12 months in advance of the docket expiration date set forth below. The docket holder will be subject to late charges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below (or the later date established by an extension that has been timely requested and approved), the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

s. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

t. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the Rules of Practice and Procedure. In accordance with Section 15.1(p) of the Delaware River Basin Compact, cases and controversies arising under the Compact are reviewable in the United States district courts.

u. The docket holder may request of the Executive Director in writing the substitution of specific conductance for TDS. The request should include information that supports the effluent specific correlation between TDS and specific conductance. Upon review,

the Executive Director may modify the docket to allow the substitution of specific conductance for TDS monitoring.

v. The docket must perform monthly Ammonia Nitrogen testing in accordance with EFFLUENT TABLE A-1 in the Section A.4.d. of this docket. After completing one (1) year worth of monthly acceptable tests (a minimum of 12 tests), the docket holder may request in writing to the Executive Director that testing for Ammonia Nitrogen be eliminated or the testing frequency be reduced based on the test results.

BY THE COMMISSION

DATE APPROVED: December 5, 2012

EXPIRATION DATE: December 5, 2017